

## LETTER TO EDITOR

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## Digitalization of Neurorehabilitation in LMICs: Experiences from the Indian Federation of Neurorehabilitation

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## Full Text

Sir,

Digitalization is transforming global healthcare systems. In low- and middle-income countries (LMICs), neurological disabilities are not decreasing at the same rate as in high-income countries due to inadequate health information and management systems and digitalization.[1] As the Consortium for Rehabilitation in Health Systems of the Indian Federation of Neurorehabilitation (IFNR), we share our experiences of neurorehabilitation digitalization, including the advantages and pitfalls faced by LMICs.

The advantages

High repetition of real-life movements improves neuroplasticity and motor learning, but it is not feasible in

traditional stroke rehabilitation. Digitalized and technology-driven stroke rehabilitation during our “CARE FOR U” study suggests intense “personalization of rehabilitation” is possible.[2] In addition, we remotely monitored and provided cognitive health maintenance exercises to patients with neurological disorders, demonstrating the feasibility of “disease prevention and health promotion related to rehabilitation.”[3] Our “ADHERE” study of remotely rehabilitating stroke patients observed better adherence to home exercises and fewer secondary complications like muscle contractures.[4] This suggests that “early detection and management of secondary complications” is effective. Besides enhancing “remote rehabilitation,” digitalization has made storing, accessing, and timely sharing enormous amounts of primary and secondary patient data easy, enhancing the “ease of rehabilitation records management.” Finally, digitalization has brought “cost reduction” through efficient rehabilitation delivery while ensuring “availability and accessibility” for more people.

### The potential pitfalls

Some digitalization procedures we considered potentially harmful were intentionally avoided. Sensors to measure body functions tend to oversimplify health and well-being and medicalize rehabilitation, threatening decades of disability advocacy based on the social model and leading to ill-conceived practices and a “fishing for reasons” approach. Sticking to predefined protocols, we avoided the “unwanted counting” of sensor data. With technological advancements in continuous monitoring and superior automation, it is crucial that “healthy balances are maintained between automation and autocratic decision-making” to minimize autocratic micromanagement of patients.

### Policy requirements

By developing policies and procedures, LMICs can digitalize neurorehabilitation, which requires consideration of the following points.

Build security-risk management strategies that protect all stakeholders' privacy, including patients' and clinicians' data.

Rewrite doctor-patient confidentiality after considering digitalization's threats; include adequate checks and balances to minimize paradoxes, such as monitoring patient safety/respecting patient privacy or clinicians' autocratic control.

Adapt legal frameworks, standard operating procedures, practice guidelines, and codes of conduct for rehabilitation professionals conforming to digital and technology-driven rehabilitation practices.

Neurorehabilitation digitalization is a “necessary evil.” Clinical care pathways with adequate checks and balances will enhance the “necessary” and control the “evil.” We have summarized the digitalization of neurorehabilitation in LMICs based on our experiences in [Figure 1].{Figure 1}

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### Conflicts of interest

There are no conflicts of interest.

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